

Different Phases of VRE Integration – Towards Sector Coupling

Phase	Description	Country Examples
1	VRE capacity is not relevant at the all-system level	Most countries, incl. Mexico, Indonesia, South Africa
2	VRE capacity becomes noticeable to the system operator	Brazil, China, India, Sweden, Texas
3	Flexibility becomes relevant with greater swings in the supply/demand balance	Italy, Germany, Portugal, Spain, UK
4	Stability becomes relevant. VRE capacity covers nearly 100% of demand at certain times	Ireland, South Australia, Denmark
5	Structural surpluses emerge; electrification of other sectors becomes relevant	
6	Bridging seasonal deficit periods and supplying non-electricity applications; seasonal storage & synthetic fuels	

